Abstract for GR-TR Conference on Statistical Mechanics and Dynamical Systems

Talk Invited Invited Talk

Open systems entanglement: What we do know, and what we would like to know

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Quantum entanglement is considered as the precious "fuel" on which quantum computers will run. However, except for the very simplest case of the entanglement between two two-level systems, this fragile quantum feature is very hard to quantify already on the theoretical level, let alone to measure in the lab. In this lecture, I will recall the basic elements of entanglement theory, spell out the central obstacles for an efficient quantification, describe the dynamics of entanglement in noisy environments, and discuss strategies for its direct experimental measurement.